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Benchmarking Crash Frequency for Multiple State Fleets with Multiple Vehicle Types

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Introduction

The impact of motor vehicle crashes goes well beyond damage to vehicles. Crashes can injure employees, injure the public, and significantly disrupt your business operations. Taking steps to reduce the human and financial impact on your business is an invaluable investment.

The National Highway Traffic Safety Administration Motor Vehicle Traffic Crash Fatality Counts and Estimates of People Injured for 2007 (DOT HS 811 034 September 2008) states that during 2007:

- 41,059 people were killed in motor vehicle crashes
- Daytime restraint use was 82%
- 54% of the passenger vehicle occupants killed were unrestrained (45% daytime & 63% nighttime)
- Alcohol related crashes were responsible for 12,998 fatalities
- Speeding related crashes were responsible for 13,040 fatalities

Most drivers are aware they should use vehicle restraints, should not operate motor vehicles while impaired and should follow the speed limit. Therefore, a lack of knowledge is not as significant of a factor as behaviors in fatal crashes are. In order to address this, companies should measure crash rates, assess driver qualification standards, compare their crash rates to others, have safety/operating policies and enforce their policies by monitoring driver performance against their policies and expectations.

Benchmarking Crash Rates

Comparing your results to others with similar operations is a common business practice. Comparing crash frequency between fleets has many challenges. Most crash frequency comparisons use crashes per vehicle per year. Vehicles that pay taxes based on miles are typically measured in crashes per million miles traveled. Vehicle crashes are a result of vehicle use, and exposure to crashes plays a significant role in expected, average or median crash rates. Even within an industry there are likely to be differences based on geography that impact exposures.

Some vehicle types have more exposure to crashes because of how they are used. Exposure or use varies by industry and the business need. In addition, crash rates vary by state. Crash benchmarks that can take into account the type of vehicle, industry group and state would provide a more accurate picture of how crash rates compare than just comparing crashes per vehicle across a large group.

To assess the impact of the variables (vehicle type, industry and location), Liberty Mutual looked at vehicles insured, crash data and liability insurance premium distribution by state. This allowed the establishment of relativity factors used to calculate an expected frequency based on vehicle type, industry group and state of garaging. Each of the variables had different ranges from highest to lowest and had impact on the expected crash frequency.

Vehicle Type: There was a 250% difference between the lowest vehicle relativity and the highest vehicle relativity.

Industry: There was a 53% difference between the lowest industry group relativity and the highest industry group relativity.

Premium Distribution by State: There was a 650% difference between the lowest state relativity and the highest state relativity.

The impact of vehicle type will be influenced by the nature of the work done with the vehicle and being in situations where more crash potential exists. The exposure during the workday or amount of time spent moving vs. parked will impact the potential for crashes.

The industry differences are impacted by the nature of the work and seasonal use. Some vehicles are not used year round. Industries that make stops throughout the day and deliver to residential properties or perform service work will have more exposure to crashes.

The state relativity range was from 100% to 650%. Two thirds of the states were between 250% and 450%, showing a typical bell curve distribution. Population density and road configuration were the most obvious reasons.

Comparing the results of one fleet to another should be done by comparing the % of expected crashes to actual crashes independent of actual crash frequency. When the % of expected is used rather than actual frequency, the differences in vehicle mixes, such as a company that sub contracts delivery with higher relativity, vehicles can be accounted for.

A lower actual crash rate company may have a higher than expected crash frequency compared to a higher crash rate company that could have a lower than expected crash frequency when the industry, vehicle mix and states are taken into account. Crash rate comparisons across industry types are not common but the same would hold true for industry groups. Given the same mix of vehicles, in the same industry group and states of operation, actual crash rates would allow for comparison but limit the potential for comparisons due to smaller sample sizes to compare.

Benchmarking Driver Quality

Each state's motor vehicle department has the capacity to furnish driving record information concerning such things as license suspensions or revocations, traffic law violations and crashes. It is recommended that you obtain a Motor Vehicle Report (MVR) for every applicant and periodically for current drivers. The frequency of MVR checks is up to your individual organization. Some states and driving record vendors have systems that will provide driving record updates when new data is posted to a driver's record.

Drivers who have a history of moving violations and crashes are likely to continue this pattern in the future. In one study, drivers who had no previous crashes or violations had a future chance of crash involvement of 1 in 2,700. The odds went up to 1 in 700 for drivers with 7 or more crashes and violations. You cannot, however, precisely predict an individual's future performance based on his or her past record. Each MVR must be interpreted in relationship to the driver's age, driving experience, violation type, attitude and other characteristics.

The federal Fair Credit Reporting Act (FCRA) creates obligations for employers who obtain consumer reports on employees and applicants. Consumer reports may, in some circumstances, include reports of an employee's or applicant's driving record. To ensure compliance with the FCRA and any applicable state law, it is a good idea to consult with legal specialists prior to obtaining an applicant's or employee's driving records.

Most of the focus on driving records is comparing an individual driver's record to written hiring, qualification or performance review criteria. In addition to comparing a driver's motor vehicle record to a standard, companies should compare the overall group of drivers to others within their industry and geographic area. Each individual driver may meet the minimum acceptable driving record, however if a majority of the drivers have records that just meet the minimum then actual crash rates compared to expected crash rates are likely to be higher.

Groups of drivers are best compared using three metrics. These are the % of drivers with clear records, the % of drivers with a serious violation in the past five years, and four or more violations or crashes in the past 3 years. Because the length of driving records will vary by state, clear is defined as no moving violations for three years and no major violations for 5 years. Written hiring, qualification or performance review criteria should also include other things such as disqualification criteria for some convictions regardless of the age of the violation for some convictions and exception criteria that outlines when, how and who can make exceptions, and how those exceptions must be documented.

When comparing industry types (contracting, manufacturing, mercantile etc.) significant differences were found in the driving record quality between the industry groups. These were compared using the same geographic section of the country to avoid regional differences discussed in the next section. The differences are highlighted by metric as discussed above and rounded to the closest whole number.

Clear driving records: The low was 60% and the high was 80%

Serious violations: The low was less than 1 % and the high was 5%

Multiple violations or crashes: The low was 0% and the high was 3%

There were also differences based on geographic parts of the country. The differences are not explained by the state crash relativity numbers as discussed in the crash benchmarking section.

They may be influenced by traffic regulation enforcement and may be distorted by some states that allow non commercial violations to be removed from a driving record when a driver completes a driver education course. The differences found between sections of the country are highlighted by metric as discussed above and rounded to the closest whole number.

Clear driving records: The low was 58% and the high was 79%

Serious violations: The low was less than 1 % and the high was 4%

Multiple violations or crashes: The low was 0% and the high was 3%

Driver selection/qualification should not be limited to driving records and should include having job descriptions, employment/job applications, using planned interviews, medical evaluations, reference checks, background investigations, driving tests and written tests. The exact mix and extent of these should be based on vehicle use, applicable regulations and essential job functions.

Benchmarking Fleet Safety Programs

The business functions of a fleet and use of the vehicles and business operations may necessitate unique fleet safety program policies but basic fleet safety polices should be similar for most fleets. Comparing your fleet safety program to other programs helps identify potential opportunities for improvement. Reviewing basic features, areas and policies in a fleet safety program/policy should be part of the regular safety program reviews companies perform. The most common program features/policies are:

- Obtain a current MVR (motor vehicle record) at hire and at least annually for all drivers that do or may operate motor vehicles on company business (company owned, personal or rented vehicles)
- Compare each MVR to written MVR criteria and document the review (MVR criteria should outline what happens when a driver no longer meets the minimum criteria)
- Conduct background checks based on risk and business function of the vehicle use
- Maintain a list of drivers that are authorized to operate motor vehicles on company business and types of vehicles they are allowed to operate
- Identify types of convictions that will disqualify a driver from being able to operate motor vehicles on company business
- Ask for violation and conviction histories from applicants or employees being considered for positions that involve operation of motor vehicles (compare to MVR)
- Require employees who are authorized to drive on company business to notify the company when they receive citations for driving violations and when convictions occur
- Employees no longer meeting driving record criteria should be removed from positions that require operation of motor vehicles
- Use roads tests to verify vehicle operation skills and identify behaviors that contribute to crashes
- Establish goals for overall quality of drivers as a group (% with clear records, major violations and repeat violations)
- Include physical capabilities for motor vehicle operation in essential job functions
- Establish a policy on locking vehicles when not in use

- Establish and document crash reporting protocols including time frames and reporting responsibilities
- Require use of vehicle restraints for using company vehicles, for using personal vehicles on company business, for business travel, for passengers in company vehicles and for passengers in personal vehicles used on company business
- Develop and document expectations for compliance with Federal, State and Local laws governing motor vehicle operation
- Prohibit use of alcohol and controlled substances while operating company vehicles or personal vehicles on company business. Address other medications that can impact a drivers ability to safety operate motor vehicles
- Prohibit loaning of company vehicles to non employees and employees not specifically authorized to operate that type of company vehicle
- Prohibit non business use of all vehicles except passenger vehicles assigned to individuals
- Limit personal use of passenger vehicles assigned to individuals to incidental use by spouses and require they meet the minimum driving record criteria outlined in the fleet safety program
- Install and provide training for mirror check stations for vehicles with dual mirror systems
- Prohibit use of privately owned two wheeled and non standard passenger vehicles for business travel
- Require prior authorization for passengers in non passenger vehicles (trucks) and require passengers with authorization to be in seats with available restraints and to use the restraints
- Prohibit U-turns on public roads
- Plan routes for business function and to avoid high hazard areas and situations
- Monitor vehicle use for off route deviations
- Document internal crash investigation protocols, procedures for involving driver's supervisor and how *preventability* will be determined
- Provide written crash reporting procedures and crash investigation forms for each vehicle
- Provide cameras for drivers to use for crash investigation and training in what pictures should and should not be taken
- Provide training on the fleet safety program and document that each driver received the training and a copy of the program
- Document that fleet safety policies apply to company owned vehicles, leased vehicles, personal vehicles used on company business and rental vehicles used for company business
- Conduct regular reviews of the program and update as needed
- Have fleet safety policy statement from top operating officer outlining compliance expectations for all locations, employees and departments
- Have progressive discipline policy reviewed by human resources so policy actions are consistent with company policy and accepted practices
- Use observations and technology to measure compliance with fleet safety policy expectations

- Establish minimum automobile liability limits for personal vehicles used on company business based on average limits in your geographic area (typically 100,000/300,000 but 300,000/300,000 provides better protection for the company)
- Obtain documentation of automobile liability insurance for personal vehicles used on company business and verify that coverage exists and meets the minimum liability limits establish in the fleet safety policy
- Require drivers of personal vehicles used on company business notify the company if automobile liability coverage is changed, cancelled or expired
- Schedule maintenance based on time and mileage and document that each vehicle gets the minimum maintenance recommended by the manufacturer
- Provide regular fleet driver training that covers fleet safety policies, safe driving expectations, safe driving concepts and crash trends
- Provide training for employees that are new or do not have previous experience operating the type of vehicle they will be operating
- Document all fleet safety training and safety promotional activities showing what was covered and who attended
- Verify drivers of non CDL required higher occupancy vehicles have training specific for the type of vehicle they will operate, have driving records that show a high regard for motor vehicle laws, have the authority and responsibility for seat belt enforcement, plan routes to take into account higher risk driving situations for their vehicle and make detailed inspections of the vehicle prior to operating them

Having Expectations

Most companies have some type of driver training, the majority of which is limited to the basics on safe vehicle operation; however, companies must also communicate their safe driving expectations. Safe driving expectations should include safe driving concepts such as following distance, but should also cover topics such as use of seat belts, obeying the speed limits, vehicle inspections and other policy issues outlined in the fleet safety program.

When conducting driver training, information on your policy, your expectations for the drivers and safe driving concepts should be combined. The training should be provided for all new employees prior to operating motor vehicles on company business and follow-up training should be provided to existing employees on a regular schedule. In addition to the above items, follow-up training should include information on crash trends at your company as well as national trends.

Behaviors, more than lack of knowledge, play a significant role in crashes. As such, the training should address behaviors that contribute to crashes. These behaviors include, but are not limited to, speeding, sudden lane changes, distractions, fatigue, route planning, scheduling and use of in vehicle technology. It is critical that companies do not send mixed messages. For example, saying drivers/employees should not use phones while driving, but then include the use of phones while driving in the job duties.

Formal training outlines and consistent training modules should be provided for all departments and locations. Employees should get the same message regardless of where they work or to whom they report. Providing and using formal training guides will help assure that this happens.

The company policy and expectations should be presented by the employee's manager. The message needs to be that safe driving is included as one of the job responsibilities and not merely an additional requirement of the safety or risk management department.

Managers and supervisors must set good examples and provide feedback when they observe or become aware of fleet safety policy violations. The employee's manager should be responsible for on-going enforcement of the fleet safety policies.

Measuring Performance against Expectations

Once expectations have been established and communicated, you need to evaluate performance to determine if performance meets your expectations. At a minimum, this evaluation should include annual reviews of driving records, performance reviews using technology, observations and accident investigations to look for driver and management compliance with the fleet safety program.

Driving Record Reviews
Driving records should be reviewed prior to allowing a driver to operate a motor vehicle on company business. Drivers must meet the hiring criteria and continue to meet it while in jobs that require the operation of motor vehicles on company business. The MVR standard should be in writing and communicated as part of initial and on-going training. Results of the regular MVR reviews should be communicated to drivers.

Technology
There are many types of technology available to monitor driver performance. Technology can provide information on things such as on-time departure, speed, sudden deceleration, off route miles, fuel mileage and location. For technology to be effective, a company must know what is typical for their fleet and area of operation. Technology must be used if a company expects a payback. Using the technology by providing feedback on performance communicates the company expectation that drivers follow company policies and operate the vehicles in a safe manner.

Observations
Compliance with fleet safety expectations can also be measured using observations. These can be simple observations of things, like seat belt use, or more detailed observations made in the vehicle or along routes. If planned routes are used, observations along the routes will provide management with knowledge of driver behaviors. This could include video, radar or other observations for compliance with company policies.

Crash and Incident Investigations
Crash investigations typically look at driver behaviors after a crash. They are also an opportunity to evaluate management and compliance with the program. For example, after a crash involving speeding, management should be able to answer the following:

- Were the hiring criteria tough enough?
- Did the company have a speed limit policy?
- Was the company speed limit too high?
- Did scheduling require drivers to speed?

- Did the compensation system contribute to the speeding?
- Would road observations have spotted a problem before the crash occurred?
- Did management know the driver routinely used excessive speed?

Using crash investigations for more than gathering crash data and determining preventability is in your best interest, your businesses best interest, and in the best interest of your employees.